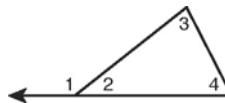


LESSON
2-6**Practice C*****Geometric Proof***

Write a two-column proof.

1. **Given:** The sum of the angle measures in a triangle is 180° .

Prove: $m\angle 1 = m\angle 3 + m\angle 4$



2. Peter drives on a straight road and stops at an intersection. The intersecting road is also straight. Peter notices that one of the angles formed by the intersection is a right angle. He concludes that the other three angles must also be right angles. Draw a diagram and write a two-column proof to show that Peter is correct.

Reading Strategies

1. Symmetric Property of Equality
2. Substitution Property of Equality
3. Reflexive Property of Equality
4. Transitive Property of Equality

2-6 GEOMETRIC PROOF

Practice A

1. B
2. A
3. B
4. C
5. two-column
- 6.

Statements	Reasons
1. a. $\angle 1$ and $\angle 2$ are straight angles.	1. Given
2. $m\angle 1 = 180^\circ$, $m\angle 2 = 180^\circ$	2. b. Def. of straight \angle
3. $m\angle 1 = m\angle 2$	3. Subst. Prop. of =
4. c. $\angle 1 \cong \angle 2$	4. Def. of $\cong \angle$

7.

Statements	Reasons
1. $\angle 1$ and $\angle 2$ form a linear pair, and $\angle 3$ and $\angle 4$ form a linear pair.	1. a. Given
2. $\angle 1$ and $\angle 2$ are supplementary, and $\angle 3$ and $\angle 4$ are supplementary.	2. b. Linear Pair Thm.
3. c. $m\angle 1 + m\angle 2 = 180^\circ$, and $m\angle 3 + m\angle 4 = 180^\circ$	3. Def. of supp. \angle
4. $m\angle 1 + m\angle 2 + m\angle 3 + m\angle 4 = 360^\circ$	4. d. Add. Prop. of =

Practice B

1. Given
2. Def. of mdpt.
3. Def. of \cong segments
4. Seg. Add. Post.
5. Subst.
6. Given
7. Mult. Prop. of =
8. Subst. Prop. of =
9. Def. of \cong segments
- 10.

Statements	Reasons
1. a. $\angle HKJ$ is a straight angle.	1. Given
2. $m\angle HKJ = 180^\circ$	2. b. Def. of straight \angle
3. c. \overline{KI} bisects $\angle HKJ$	3. Given
4. $\angle IKJ \cong \angle IKH$	4. Def. of \angle bisector
5. $m\angle IKJ = m\angle IKH$	5. Def. of $\cong \angle$
6. d. $m\angle IKJ + m\angle IKH = m\angle HKJ$	6. \angle Add. Post.
7. $2m\angle IKJ = 180^\circ$	7. e. Subst. (Steps 2, 5, 6)
8. $m\angle IKJ = 90^\circ$	8. Div. Prop. of =
9. $\angle IKJ$ is a right angle.	9. f. Def. of right \angle

Practice C

1.

Statements	Reasons
1. $m\angle 2 + m\angle 3 + m\angle 4 = 180^\circ$	1. Given
2. $\angle 1$ and $\angle 2$ are supplementary.	2. Linear Pair Thm.
3. $m\angle 1 + m\angle 2 = 180^\circ$	3. Def. of supp. \angle
4. $m\angle 1 + m\angle 2 = m\angle 2 + m\angle 3 + m\angle 4$	4. Subst. Prop. of =
5. $m\angle 1 = m\angle 3 + m\angle 4$	5. Subtr. Prop. of =



2. Possible answer:

Statements	Reasons
1. $\angle 1$ is a right angle.	1. Given
2. $\angle 1$ and $\angle 2$, $\angle 1$ and $\angle 4$, $\angle 2$ and $\angle 3$ are supplementary.	2. Linear Pair Thm.
3. $\angle 1 \cong \angle 3$	3. Congruent Supps. Thm.
4. $\angle 3$ is a right angle.	4. Rt. $\angle \cong$ Thm.
5. $m\angle 1 + m\angle 2 = 180^\circ$, $m\angle 1 + m\angle 4 = 180^\circ$	5. Def. of supp. \angle
6. $m\angle 1 = 90^\circ$	6. Def. of rt. \angle
7. $90^\circ + m\angle 2 = 180^\circ$, $90^\circ + m\angle 4 = 180^\circ$	7. Subst.
8. $m\angle 2 = 90^\circ$, $m\angle 4 = 90^\circ$	8. Subtr. Prop. of =
9. $\angle 2$ and $\angle 4$ are right angles.	9. Def. of rt. \angle